



XP-002364391

DEFECTIVE CAPACITOR INDICATION

R. M. Murcko and J. G. Simek

Electronic computers utilize tantalum capacitors. These capacitors occasionally fail, and it is important to be able to detect which particular capacitor has failed. When a capacitor fails, increased current passes through the capacitor, and it is heated.

A cover sheet can be placed over the capacitor such that the increased thermal or magnetic activity in the capacitor when it fails will change the color of the cover sheet, making detection possible. Either the thermal activity can change the color quality of the cover sheet or the magnetic field caused by the shorting current can magnetize the sheet in the location of the failed component.

The cover sheet can be fabricated from a layered film of liquid crystal material, magnetic material, or other type of energy-sensitive materials.

An alternative technique is to place a coiled nitinol spring between the capacitor and the board on which the capacitor is mounted. It is noted that the heat from a failed capacitor can be sufficient to desolder the capacitor from the circuit board. This heat will also uncoil the nitinol spring, thereby lifting the capacitor away from the board.